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*Slight variations in appearance and specifications may exist between the catalogue and the actual product.
We reserve the right to change the information in this catalogue without prior notice.



AC Servo Motors and Drives

ASDA-B2

www.delta.com.tw/industrialautomation

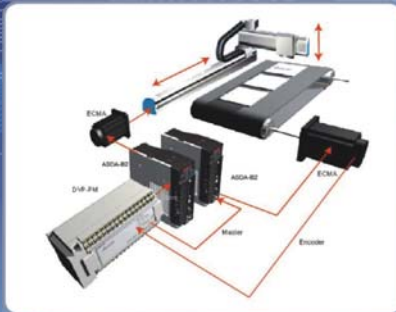
High Precision. High Response. Cost Effective.

Delta Electronics' new high-performance, cost-effective ASDA-B2 series servo motors and drives meet the requirements for general-purpose machine tools and enhance the competitive advantage of servo systems.

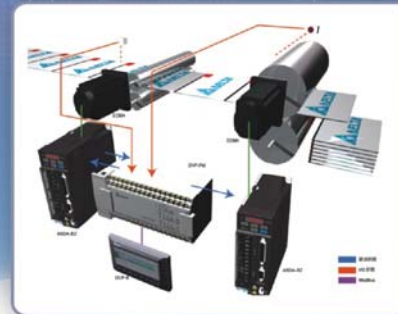
The power rating of the ASDA-B2 series ranges from 0.1kW to 3kW. The superior features of this series emphasize built-in generic functions for general purpose applications and avoiding variable costs from mechatronics integration. Delta's ASDA-B2 makes it convenient to complete assembly, wiring and operation setups. Switching from other brands is quick and easy due to the ASDA-B2's outstanding quality and features, and complete product lineup. The ASDA-B2 satisfies the requirements of general-purpose machine tools. Customized solutions for different industries are available on request which is why the ASDA-B2 is popular and always in demand by customers in the field of industrial automation.



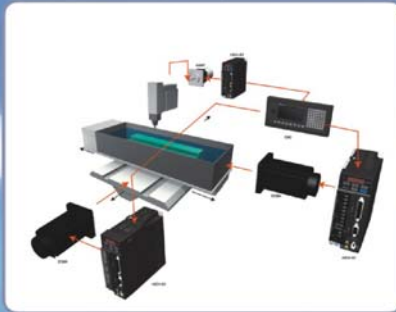
Transportation Machine



Cutting Machine



Electro-discharge Machine



Sawing Machine



Contents

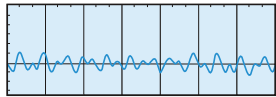
	Page
1. Introduction to the ASDA-B2 Series	1
Features	
Model Explanation	
Product Line-up	
2. ASDA-B2 Series Servo Drives	7
Part Names and Functions	
Standard Connection Examples	
Regenerative Resistor	
Safety Information	
Specifications	
Dimensions	
4. ECMA Series Servo Motors	17
Specifications	
Dimensions	
Speed-Torque Curve (T-N Curves)	
5. Optional Accessories	23
6. Servo Drive, Servo Motor and Accessories Combinations	29

Features

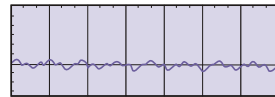
● Implements High Precision Positioning Control

- High-resolution encoder with 17-bit (160,000 p/rev) is a standard feature which satisfies the application needs of high precision positioning control and stable rotation at low speed.
- New 17-bit resolution encoder can reduce cogging torque to enhance the precision of the motor.

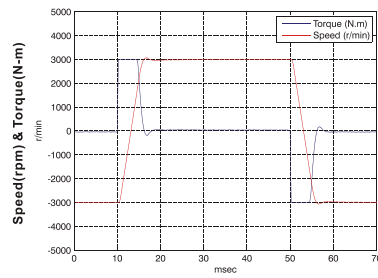
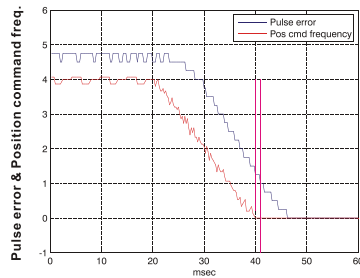
Torque ripple of 2500ppr resolution encoder



Torque ripple of 17-bit resolution encoder



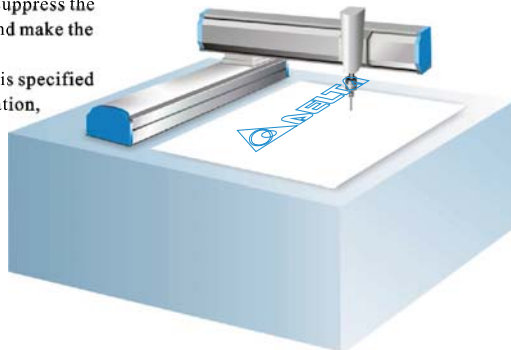
- Outstanding response characteristic: Up to 550kHz frequency response and settling time is below 1ms.
- 10ms acceleration time from -3000r/min to 3000r/min when running without load.



This example is frame size 60mm, 400W servo motor

● Satisfies a Variety of Demands in the Industry

- Built-in position, speed and torque three control modes (speed and torque mode can be controlled via internal parameters or analog voltage command).
- High-speed line receiver command (4Mpps) is acceptable for high precision positioning control.
- Two auto notch filters are provided to suppress the mechanical resonance automatically and make the system operate more smoothly.
- Lead friction compensation parameter is specified for the application of circular interpolation, Z-axis motion and ball screw, etc. so as to reduce the loading of the controller.
- For bar feeders and other equipment requiring high torque output, motor protection parameters are offered to ensure that the mechanical system is not easily damaged.



● Offers Easy-To-Install Solution For Simple Start-Up

Power of control circuit and main power circuit is separated.



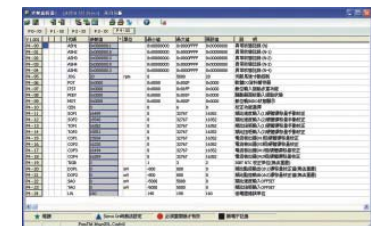
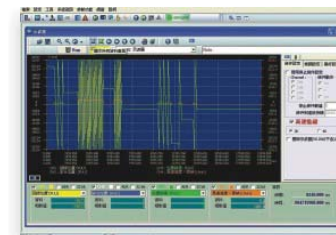
- Existing power cables and encoder cables can still be used for the ASDA series. When upgrading, there is no need to purchase new accessories.
- Servo motor provides brake, oil seal, etc. optional configurations for the requirements of different applications.
- The control circuit and main power circuit is separated, safety is increased and maintenance is much easier.
- 400W and above servo drive is built-in with regenerative resistor, for significant savings on wiring and cost.



Built-in with regenerative resistor

● Fulfills Easy-To-Use Requirements For Versatile Operation

- Motor sizing software is offered for convenient estimation of equipment.
- ASDA-Soft configuration software (tuning software) is provided to meet performance requirements quickly.
- Easy-to-use digital keypad is ideal for setting parameters and monitoring the servo drive and motor directly.
- Specific software communication cable ASD-CNUS0A08(Optional) for direct connection to PC increases communication quality and convenience of operation. (please refer to optional accessories on catalogue page 24)

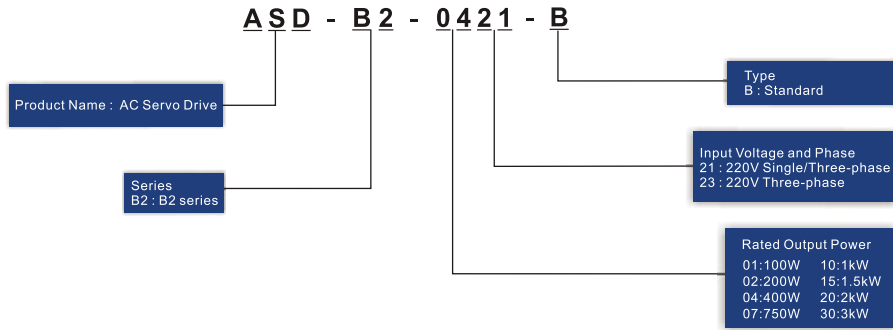


- 4 channels on-line monitoring function (similar to a digital oscilloscope) is available. The monitoring data could be 16-bit (4 channels) and 32-bit (2channels) data.
- Multi-functional parameter editor function helps the users to edit, modify, upload / download and print desired parameters in real-time.

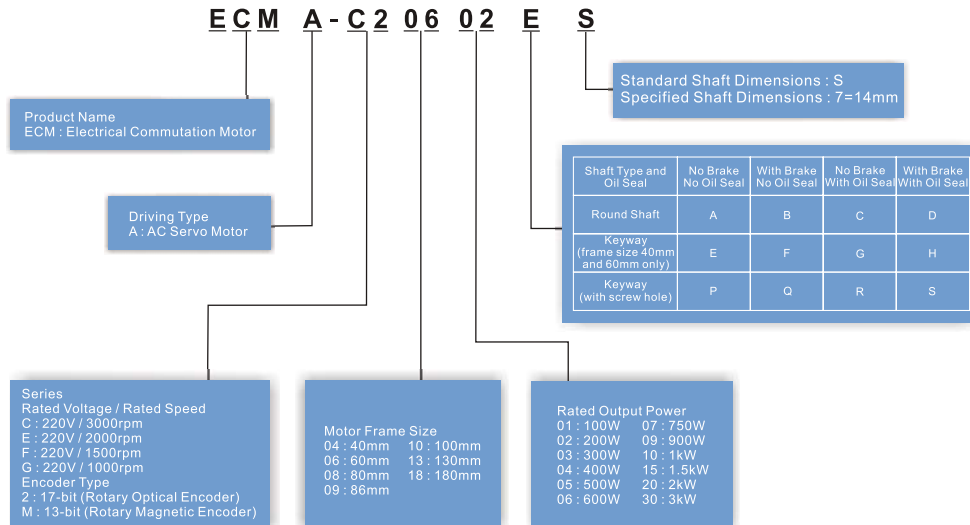


Model Explanation

ASDA-B2 Series Servo Drives



ECMA Series Servo Motors



Note: Rotary Magnetic Encoder will be available gradually from March, 2010

Product Line-up

Servo Drive	0.1kW		0.2kW		0.4kW		0.75kW		1.0kW		1.5kW		2kW		3kW	
		ASD-B2-0121-B		ASD-B2-0221-B		ASD-B2-0421-B		ASD-B2-0721-B		ASD-B2-1021-B		ASD-B2-1521-B		ASD-B2-2023-B		ASD-B2-3023-B

Servo Motor	ECMA-C20401□S		ECMA-C20602□S		ECMA-C20604□S		ECMA-C20807□S		ECMA-C21010□S		ECMA-E21315□S		ECMA-C21020□S		ECMA-E21830□S	
					ECMA-CM0604PS	ECMA-G21306□S	ECMA-GM1306PS	ECMA-G21309□S	ECMA-GM1309PS	ECMA-C20907□S	ECMA-C20910□S			ECMA-E21320□S	ECMA-E21820□S	ECMA-F21830□S

Note: The boxes (□) in the servo motor model names are for optional configurations (keyway, brake and oil seal).

Part Names and Functions

LED Display

- The 5 digit, 7 segment LED displays the servo status or fault codes.

Charge LED

- A lit LED indicates that either power is connected to the servo drive or a residual charge is present in the drive's internal power components.

Operation Panel

- Function keys used to perform status display, monitor and diagnostic, function and parameter setting. Function Keys:
 MODE : Press this key to select/change mode
 SHIFT : Press this key to shift cursor to the left
 ▲ : Press this key to increase values on the display
 ▼ : Press this key to decrease values on the display
 SET : Press this key to store data

Control Circuit Terminal (L1c, L2c)

- Used to connect 100~230Vac, 50/60Hz single-phase or three-phase VAC supply.

Main Circuit Terminal (R, S, T)

- Used to connect 200~230Vac, 50/60Hz commercial power supply.

Servo Motor Output (U, V, W)

- Used to connect servo motor. Never connect the output terminal to main circuit power as the AC drive may be damaged beyond repair if incorrect cables are connected to the output terminals.

Internal & External Regenerative Resistor Terminal

1. When using an external resistor, connect it to P⊕ and C, and ensure an open circuit between P⊕ and D.
2. When using an internal resistor, ensure the circuit is closed between P⊕ and D, and the circuit is open between P⊕ and C.
3. When using external braking unit, connect braking unit to P⊕ and ⊖, and ensure an open circuit between P⊕ and D, and P⊕ and C.

Ground Terminal

- Used to connect grounding wire of power supply and servo motor.



I/O Interface

- Used to connect Delta's DVP series PLC or other external controllers for controlling I/O signals.

Motor Encoder Interface

- Used to connect the encoder of the servo motor

Serial Communication Port

- Used to connect PLC, HMI, etc. controllers for RS-485 / RS-232 serial communication.

Analog Voltage Output Terminal

- Used to provide two analog monitor outputs, MON1 and MON2.

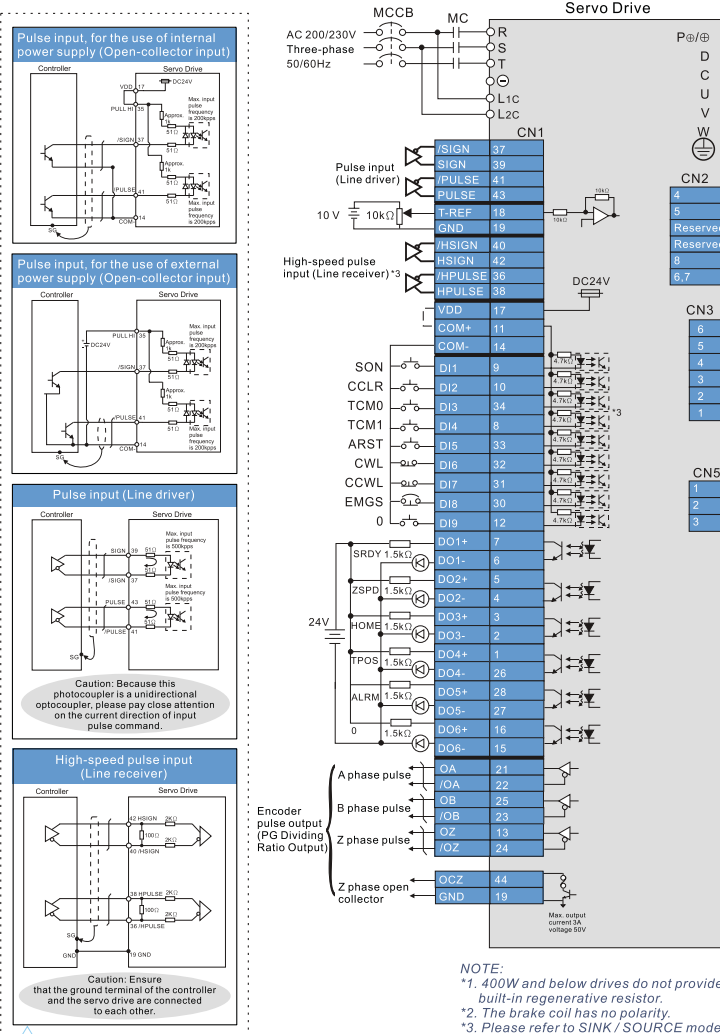
Heatsink

- Used to secure servo drive and for heat dissipation.

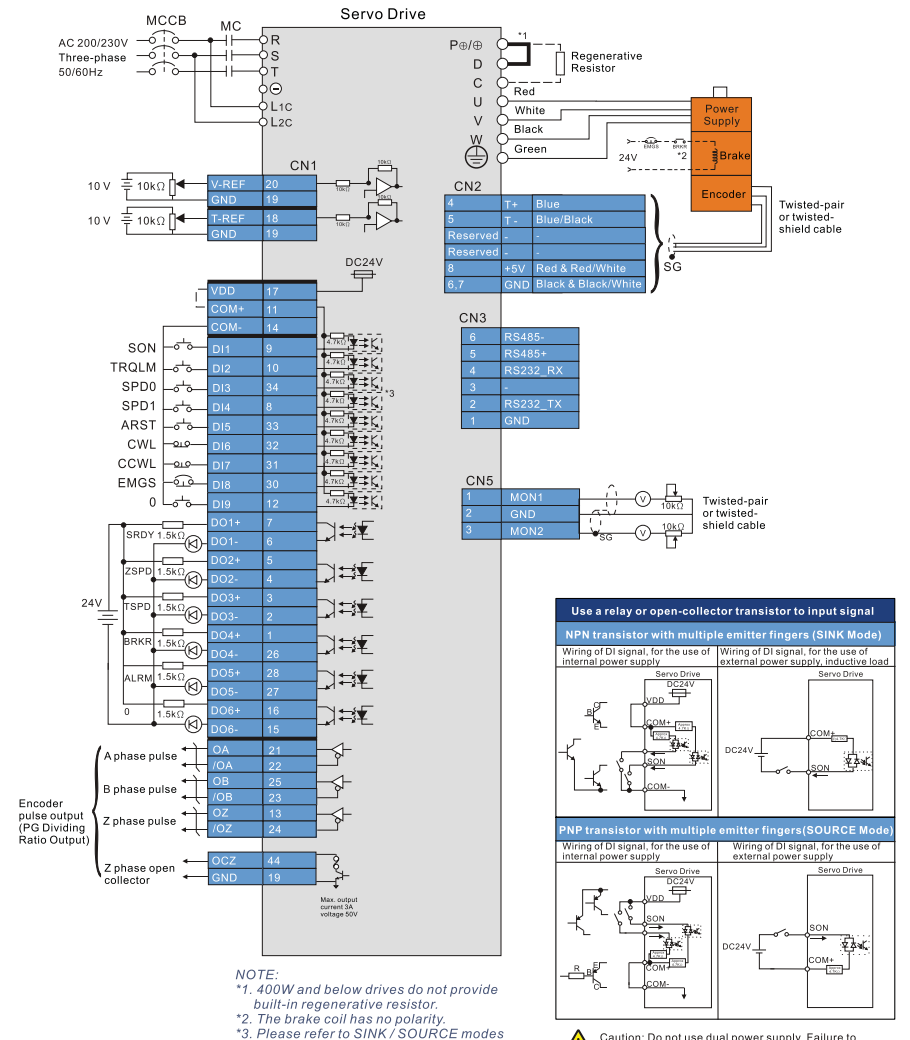


Standard Connection Examples

● Position (Pt) Control Mode (for Pulse Command Input)

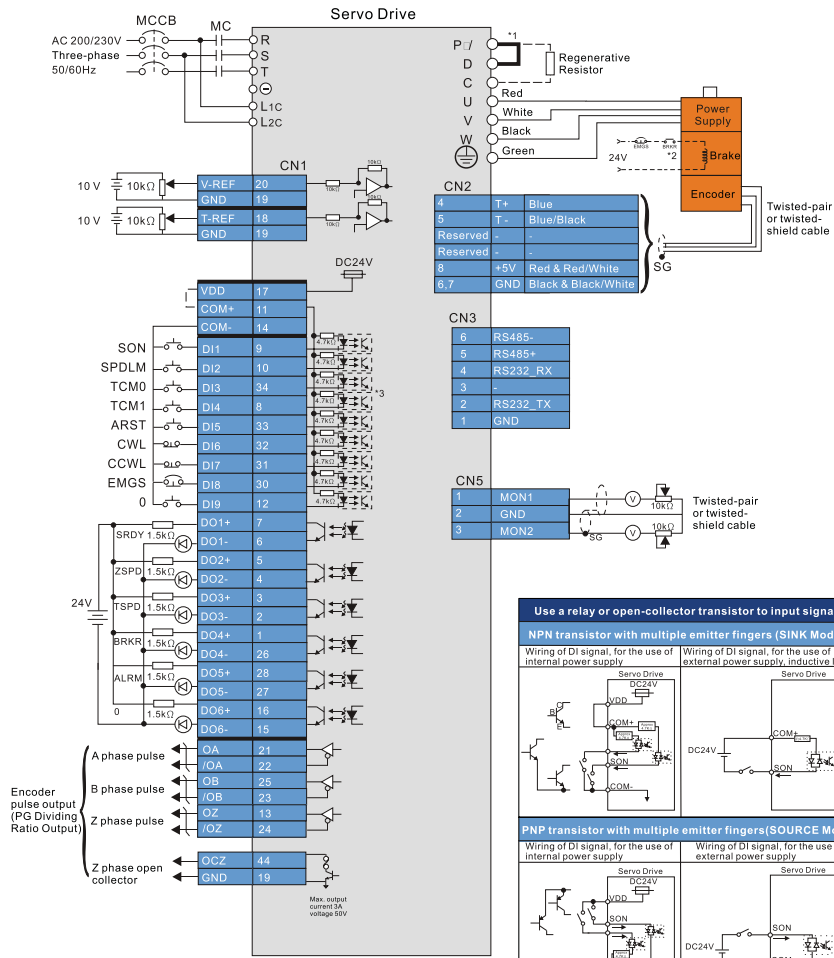


● Speed (S) Control Mode



Standard Connection Examples

Torque (T) Control Mode



NOTE:
 *1. 400W and below drives do not provide built-in regenerative resistor.
 *2. The brake coil has no polarity.
 *3. Please refer to SINK / SOURCE modes

Caution: Do not use dual power supply. Failure to observe this caution may result in damage to the servo drive and servo motor.

Regenerative Resistor

Servo Drive (kW)	Recommended Specifications for Built-in Regenerative Resistor		Recommended Specifications for External Regenerative Resistor	Min. Allowable Resistance (Ohm)
	Resistance (Ohm) (parameter P1-52)	Capacity (Watt) (parameter P1-53)		
0.1	--	--	80Ω	60Ω
0.2	--	--	80Ω	60Ω
0.4	100Ω	60W	80Ω	60Ω
0.75	100Ω	60W	80Ω	60Ω
1.0	40Ω	60W	40Ω	30Ω
1.5	40Ω	60W	40Ω	30Ω
2.0	20Ω	100W	30Ω	15Ω
3.0	20Ω	100W	30Ω	15Ω

Note:

- ◆ There is no built-in regenerative resistor for 200W and below ASDA-B2 series servo drives.
- ◆ When the fault, ALE05 (Regeneration Error) occurs, please increase the regenerative resistor capacity or decrease the regenerative resistor resistance (the regenerative resistor resistance should not be less than the minimum allowable resistance listed in the above table.)
- ◆ If the situation is not improved after increasing the regenerative resistor capacity or decreasing the regenerative resistor resistance, please purchase regenerative resistor module.
- ◆ When combining multiple small-capacity regenerative resistors in parallel to increase the regenerative resistor capacity, make sure that the total resistance value of the regenerative resistors should not be less than the minimum allowable resistance listed in the above table.

Safety Information

Global Standards	ASDA-B2 series is designed to fully comply with demanding international standards, i.e. IEC and EN, etc. for all fields of industrial automation technology.	
EMS standard	EN61000-4-6	Level 3
	EN61000-4-3	Level 3
	EN61000-4-2	Level 2 and 3
	EN61000-4-4	Level 3
	EN61000-4-8	Level 4
Conducted & Radiated Emissions	EN61000-4-5	Level 3
	Complies with EN550011 Class A Group 1, with external EMC filter	
CE Marking	CE recognized. Complies with Directive 2006/95/EC of the European Parliament and EMC Directive 2004/108/EC.	
Protection Degree	IEC/EN50178, IEC/EN60529 IP20	
Vibration	1G less than 20Hz, 0.6G 20 to 50Hz. Complies with IEC/EN50178	
Shock	15gn 11ms. Complies with IEC/EN600028-2-27	
Pollution Degree	Degree 2. Complies with IEC/EN61800-5-1	
Ambient Temperature	Operating: 0°C~55°C (If operating temperature exceeds the specifications, forced cooling will be required.) Storage: -20°C~65°C	
Cooling Type	ASD-B2-0121-B, ASD-B2-0221-B, ASD-B2-0421-B, ASD-B2-0721-B Natural Air Circulation ASD-B2-1021-B, ASD-B2-1521-B, ASD-B2-2023-B, ASD-B2-3023-B Fan Cooling	
Altitude	Altitude 1000m or lower above sea level	

IEC: International Electrotechnical Commission
 EN: Europäischen Normen
 EMC: Electromagnetic Compatibility
 IP: Ingress Protection Ratings



Specifications

ASDA-B2 Series		100W	200W	400W	750W	1kW	1.5kW	2kW	3kW	
		01	02	04	07	10	15	20	30	
Power Supply	Phase / Voltage	Three-phase : 170 ~ 255VAC · 50/60Hz 5%						Three-phase 170~255VAC · 50/60Hz 5%		
		Single-phase : 200 ~ 255VAC · 50/60Hz 5%								
	Continuous Output Current	0.9 Arms	1.55 Arms	2.6 Arms	5.1 Arms	7.3 Arms	8.3 Arms	13.4 Arms	19.4 Arms	
	Cooling System	Natural Air Circulation			Fan Cooling					
	Encoder Resolution / Feedback Resolution	17-bit (160,000 p/rev)								
	Control of Main Circuit	SVPWM Control								
	Tuning Modes	Auto / Manual								
	Dynamic Brake	None			Built-in					
Position Control Mode	Max. Input Pulse Frequency	Max. 500Kpps (Line driver) (low speed) / Max. 4Mpps (Line receiver) (high speed) Max. 200Kpps (Open collector)								
	Pulse Type	Pulse + Direction : A phase + B phase : CCW pulse + CW pulse								
	Command Source	External pulse train / Internal parameters								
	Smoothing Strategy	Low-pass and Moving filter								
	Electronic Gear	Electronic gear N/M multiple N: 1 ~ (2 ²⁶ -1), M: 1 ~ (2 ³¹ -1) (1/50<N/M<25600)								
	Torque Limit Operation	Set by parameters								
	Feed Forward Compensation	Speed Control Mode								
Speed Control Mode	Analog Input Command	Voltage Range	0 ~ ±10 V _{DC}							
		Input Resistance	10K							
		Time Constant	2.2 us							
	Speed Control Range ¹	1:5000								
	Command Source	External analog signal / Internal parameters								
	Smoothing Strategy	Low-pass and S-curve filter								
	Torque Limit Operation	Set by parameters or via Analog input								
	Frequency Response Characteristic	Maximum 550Hz								
	Speed Fluctuation Rate ²		0.01% or less at load fluctuation 0 to 100% (at rated speed)							
			0.01% or less at power fluctuation ±10% (at rated speed)							
Torque Control Mode	Analog Input Command	Voltage Range	0 ~ ±10 V _{DC}							
		Input Resistance	10K							
		Time Constant	2.2 us							
	Command Source	External analog signal / Internal parameters								
	Speed Limit Operation	Parameter Setting or via Analog input								

ASDA-B2 Series		100W	200W	400W	750W	1kW	1.5kW	2kW	3kW
		01	02	04	07	10	15	20	30
Analog Monitor Output		Monitor signal can set by parameters (Output voltage range: ±8V)							
Digital Input/ Output	Input	Servo On, Reset, Gain switching, Pulse clear, Zero speed CLAMP, Speed/Torque limit enabled, Emergency stop, Forward / Reverse inhibit limit, Position / Speed mode switching, Speed / Torque mode switching, Torque / Position mode switching, Feed step selection input, Feed step mode input, Auto run input, Electronic gear ratio (Numerator) selection							
	Output	Encoder signal output (A, B, Z Line Driver / Z Open collector) Servo ready, Servo On, At Zero speed, At Speed reached, At Positioning completed, At Torques limit, Servo alarm (Servo fault) activated, Electromagnetic brake control, Homing completed, Output overload warning Servo warning activated, Internal position command completed							
Protective Functions		Overcurrent, Overvoltage, Undervoltage, Regeneration error, Overload, Overspeed, Abnormal pulse control command, Excessive deviation, Watch dog execution time out, Encoder error, Adjustment error, Emergency stop activated, Reverse/ Forward limit switch error, IGBT temperature error, Memory error, DSP communication error, Serial communication error, Input power phase loss, Serial communication time out, Command write-in error, terminals with short circuit protection (U, V, W, CN1, CN2, CN3 terminals)							
Communication Interface		RS-232 / RS-485							
Environment	Installation Site	Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)							
	Altitude	Altitude 1000m or lower above sea level							
	Atmospheric Pressure	86kPa ~ 106kPa							
	Operating Temperature	0°C ~ 55°C (If operating temperature is above 45°C, forced cooling will be required)							
	Storage Temperature	-20°C ~ 65°C							
	Humidity	0 to 90% (non-condensing)							
	Vibration	20Hz以下 9.80665m/s ² (1G) · 20 ~ 50Hz 5.88m/s ² (0.6G)							
	IP Rating	IP20							
	Power System	TN System ³							
	Approvals	IEC/EN 61800-5-1  							

Footnote:

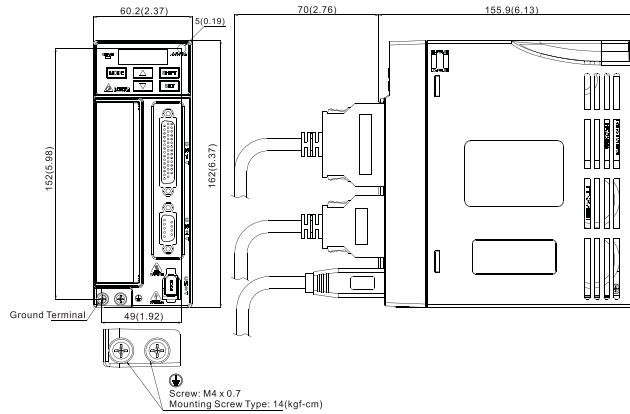
- *1 Rated rotation speed: When full load, speed ratio is defined as the minimum speed (the motor will not pause).
- *2 When command is rated rotation speed, the speed fluctuation rate is defined as: (Empty load rotation speed - Full load rotation speed) / Rated rotation speed
- *3 TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that point by a protective earth conductor.





Dimensions

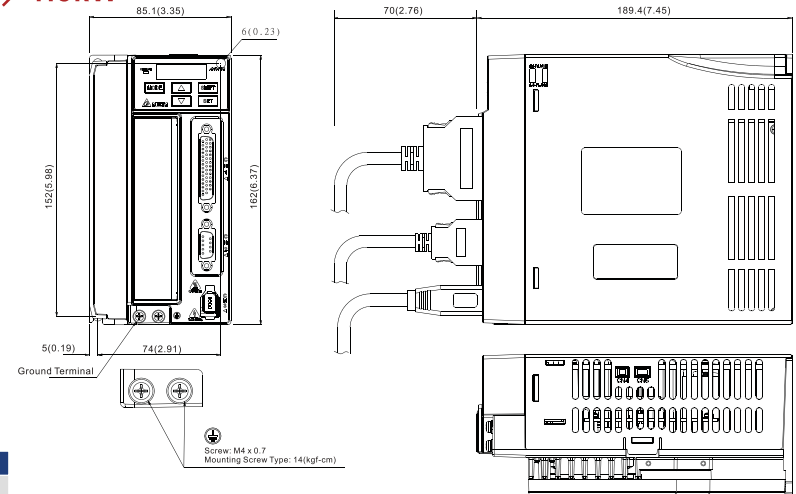
100W/200W/400W



Weight
1.07 (2.36)

NOTE 1)Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2)Dimensions and weights of the servo drives may be revised without prior notice.

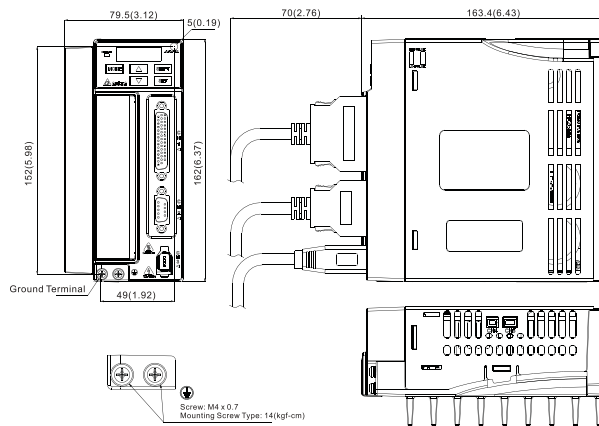
1kW/1.5kW



Weight
1.72 (3.79)

NOTE 1)Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2)Dimensions and weights of the servo drives may be revised without prior notice.

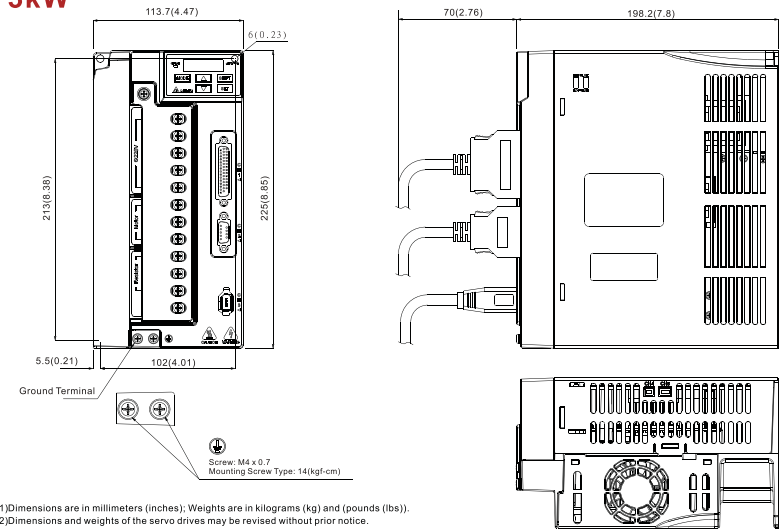
750W



Weight
1.54 (3.40)

NOTE 1)Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2)Dimensions and weights of the servo drives may be revised without prior notice.

2kW/3kW



Weight
2.67 (5.88)

NOTE 1)Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2)Dimensions and weights of the servo drives may be revised without prior notice.



ECMA Specifications

Low Inertia Series

Model: ECMA Series	C204		C206		C208		C209		C210	
	01	02	04	04	07	07	10	10	20	
Rated output power (kW)	0.1	0.2	0.4	0.4	0.75	0.75	1.0	1.0	2.0	
Rated torque (N·m) ¹⁾	0.32	0.64	1.27	1.27	2.39	2.39	3.18	3.18	6.37	
Maximum torque (N·m)	0.96	1.92	3.82	3.82	7.16	7.14	8.78	9.54	19.1	
Rated speed (r/min)	3000				3000				3000	
Maximum speed (r/min)	5000				3000				5000	
Rated current (A)	0.90	1.55	2.60	2.60	5.10	3.66	4.25	7.30	12.05	
Maximum current (A)	2.70	4.65	7.80	7.24	15.3	11	12.37	21.9	36.15	
Power rating (kW/s)	27.7	22.4	57.6	22.1	48.4	29.6	38.6	38.1	90.6	
Rotor moment of inertia (× 10 ⁻⁴ kg·m ²)(Without brake)	0.037	0.177	0.277	0.68	1.13	1.93	2.62	2.65	4.45	
Mechanical time constant (ms)	0.75	0.80	0.53	0.73	0.62	1.72	1.20	0.74	0.61	
Torque constant-KT (N·m/A)	0.36	0.41	0.49	0.49	0.47	0.65	0.75	0.44	0.53	
Voltage constant-KE (mV/(r/min))	13.6	16.0	17.4	18.5	17.2	27.5	24.2	16.8	19.2	
Armature resistance (Ohm)	9.30	2.79	1.55	0.93	0.42	1.34	0.897	0.20	0.13	
Armature inductance (mH)	24.0	12.07	6.71	7.39	3.53	7.55	5.7	1.81	1.50	
Electrical time constant (ms)	2.58	4.30	4.30	7.96	8.36	5.66	6.35	9.30	11.4	
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	>100MΩ · DC 500V									
Insulation strength	1500V AC, 60 seconds									
Weight (kg) (without brake)	0.5	1.2	1.6	2.1	3.0	2.9	3.8	4.3	6.2	
Weight (kg) (with brake)	0.8	1.5	2.0	2.9	3.8	3.69	5.5	4.7	7.2	
Max. radial shaft load (N)	78.4	196	196	245	245	245	245	490	490	
Max. thrust shaft load (N)	39.2	68	68	98	98	98	98	98	98	
Power rating (kW/s) (with brake)	25.6	21.3	53.8	22.1	48.4	29.3	37.9	30.4	82.0	
Rotor moment of inertia (× 10 ⁻⁴ kg·m ²) (with brake)	0.04	0.19	0.30	0.73	1.18	1.95	2.67	3.33	4.95	
Mechanical time constant (ms) (with brake)	0.81	0.85	0.57	0.78	0.65	1.74	1.22	0.93	0.66	
Brake holding torque [N·m (min)]	0.3	1.3	1.3	2.5	2.5	2.5	2.5	8.0	8.0	
Brake power consumption (at 20C) [W]	7.2	6.5	6.5	8.2	8.2	8.2	8.2	18.5	18.5	
Brake release time [ms (Max)]	5	10	10	10	10	10	10	10	10	
Brake pull-in time [ms (Max)]	25	70	70	70	70	70	70	70	70	
Vibration grade (μm)	15									
Operating temperature (°C)	0 ~ 40									
Storage temperature (°C)	-10 ~ 80									
Operating humidity	20 ~ 90%RH (non-condensing)									
Storage humidity	20 ~ 90%RH (non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Approvals										

Medium / High Inertia Series

Model: ECMA Series	E213				E218		F218	G213		
	05	10	15	20	20	30	30	03	06	09
Rated output power (kW)	0.5	1.0	1.5	2.0	2.0	3.0	3.0	0.3	0.6	0.9
Rated torque (N·m) ¹⁾	2.39	4.77	7.16	9.55	9.55	14.32	19.10	2.86	5.73	8.59
Maximum torque (N·m)	7.16	14.32	21.48	28.65	28.65	42.97	57.29	8.59	17.19	21.48
Rated speed (r/min)	2000				1500			1000		
Maximum speed (r/min)	3000							2000		
Rated current (A)	2.9	5.6	8.3	11.01	11.22	16.1	19.4	2.5	4.8	7.5
Maximum current (A)	8.7	16.8	24.81	33.03	33.66	48.3	58.2	7.44	14.49	22.5
Power rating (kW/s)	7.0	27.1	45.9	62.5	26.3	37.3	66.4	10.0	39.0	66.0
Rotor moment of inertia (× 10 ⁻⁴ kg·m ²)(Without brake)	8.17	8.41	11.18	14.59	34.68	54.95	54.95	8.17	8.41	11.18
Mechanical time constant (ms)	1.91	1.51	1.11	0.96	1.62	1.06	1.28	1.84	1.40	1.07
Torque constant-KT (N·m/A)	0.83	0.85	0.87	0.87	0.85	0.89	0.98	1.15	1.19	1.15
Voltage constant-KE (mV/(r/min))	30.9	31.9	31.8	31.8	31.4	32.0	35.0	42.5	43.8	41.6
Armature resistance (Ohm)	0.57	0.47	0.26	0.174	0.119	0.052	0.077	1.06	0.82	0.43
Armature inductance (mH)	7.39	5.99	4.01	2.76	2.84	1.38	1.27	14.29	11.12	6.97
Electrical time constant (ms)	12.96	12.88	15.31	15.86	23.87	26.39	16.51	13.55	13.55	16.06
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	>100MΩ · DC 500V									
Insulation strength	1500V AC, 60 seconds									
Weight (kg) (without brake)	6.8	7.0	7.5	7.8	13.5	18.5	18.5	6.8	7.0	7.5
Weight (kg) (with brake)	8.2	8.4	8.9	9.2	17.5	22.5	22.5	8.2	8.4	8.9
Max. radial shaft load (N)	490	490	490	490	1176	1470	1470	490	490	490
Max. thrust shaft load (N)	98	98	98	98	490	490	490	98	98	98
Power rating (kW/s) (with brake)	6.4	24.9	43.1	59.7	24.1	35.9	63.9	9.2	35.9	62.1
Rotor moment of inertia (× 10 ⁻⁴ kg·m ²) (with brake)	8.94	9.14	11.90	15.88	37.86	57.06	57.06	8.94	9.14	11.9
Mechanical time constant (ms) (with brake)	2.07	1.64	1.19	1.05	1.77	1.10	1.33	2.0	1.51	1.13
Brake holding torque [N·m (min)]	16.5	16.5	16.5	16.5	25.0	25.0	25.0	10.0	10.0	10.0
Brake power consumption (at 20C) [W]	21.0	21.0	21.0	21.0	20.4	20.4	20.4	19.0	19.0	19.0
Brake release time [ms (Max)]	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Brake pull-in time [ms (Max)]	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Vibration grade (μm)	15									
Operating temperature (°C)	0 ~ 40									
Storage temperature (°C)	-10 ~ 80									
Operating humidity	20 ~ 90%RH(non-condensing)									
Storage humidity	20 ~ 90%RH(non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Approvals										

Footnote: ¹⁾ Rated torque values are continuous permissible values at 0~40°C ambient temperature when attaching with the sizes of heatsinks listed below.

²⁾ For the specifications of the motors with rotary magnetic encoders, please refer to the corresponding standard models.

ECMA-04 / 06 / 08 : 250mm x 250mm x 6mm
 ECMA-10 : 300mm x 300mm x 12mm
 ECMA-13 : 400mm x 400mm x 20mm

Footnote: ¹⁾ Rated torque values are continuous permissible values at 0~40°C ambient temperature when attaching with the sizes of heatsinks listed below.

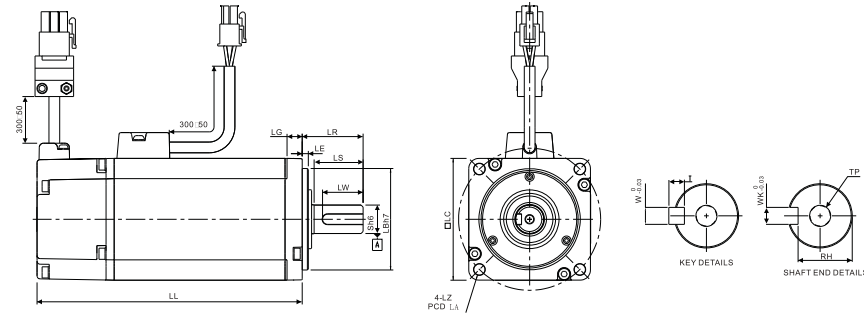
²⁾ For the specifications of the motors with rotary magnetic encoders, please refer to the corresponding standard models.

ECMA-04 / 06 / 08 : 250mm x 250mm x 6mm
 ECMA-10 : 300mm x 300mm x 12mm
 ECMA-13 : 400mm x 400mm x 20mm

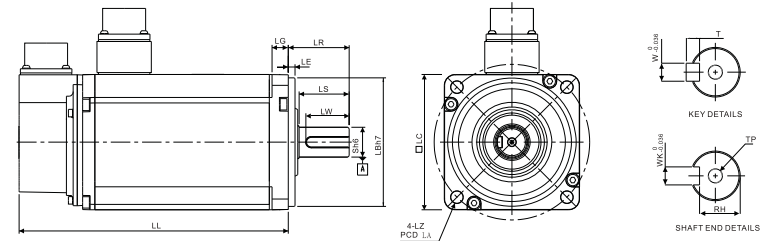


Dimensions

Motors - Frame Size 80mm and below (Units: mm)



Motors - Frame Size 100mm ~ 130mm (Units: mm)



Model	C20401□S	C20602□S	C20604□S	C20804□S	C20807□S	C20907□S	C20910□S
LC	40	60	60	80	80	86	86
LZ	4.5	5.5	5.5	6.6	6.6	6.6	6.6
LA	46	70	70	90	90	100	100
S	8 ^(+0/-0.009)	14 ^(+0/-0.011)	14 ^(+0/-0.011)	14 ^(+0/-0.011)	19 ^(+0/-0.013)	16 ^(+0/-0.011)	16 ^(+0/-0.011)
LB	30 ^(+0/-0.021)	50 ^(+0/-0.025)	50 ^(+0/-0.025)	70 ^(+0/-0.030)	70 ^(+0/-0.030)	80 ^(+0/-0.030)	80 ^(+0/-0.030)
LL(Without Brake)	100.6	105.5	130.7	112.3	138.3	130.2	153.2
LL(With Brake)	136.6	141.6	166.8	152.8	178	161.3	184.3
LS(Without Oil Seal)	20	27	27	27	32	30	30
LS(With Oil Seal)	20	24	24	24.5	29.5	30	30
LR	25	30	30	30	35	35	35
LE	2.5	3	3	3	3	3	3
LG	5	7.5	7.5	8	8	8	8
LW	16	20	20	20	25	20	20
RH	6.2	11	11	11	15.5	13	13
WK	3	5	5	5	6	5	5
W	3	5	5	5	6	5	5
T	3	5	5	5	6	5	5
TP	M3 Depth 8	M4 Depth 15	M4 Depth 15	M4 Depth 15	M6 Depth 20	M5 Depth 15	M5 Depth 15

Model	G21303□S	E21305□S	G21306□S	G21309□S	C21010□S
LC	130	130	130	130	100
LZ	9	9	9	9	9
LA	145	145	145	145	115
S	22 ^(+0/-0.013)	22 ^(+0/-0.013)	22 ^(+0/-0.013)	22 ^(+0/-0.013)	22 ^(+0/-0.013)
LB	110 ^(+0/-0.035)	110 ^(+0/-0.035)	110 ^(+0/-0.035)	110 ^(+0/-0.035)	95 ^(+0/-0.035)
LL(Without Brake)	147.5	147.5	147.5	163.5	153.3
LL(With Brake)	183.5	183.5	183.5	198	192.5
LS	47	47	47	47	37
LR	55	55	55	55	45
LE	6	6	6	6	5
LG	11.5	11.5	11.5	11.5	12
LW	36	36	36	36	32
RH	18	18	18	18	18
WK	8	8	8	8	8
W	8	8	8	8	8
T	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20



NOTE

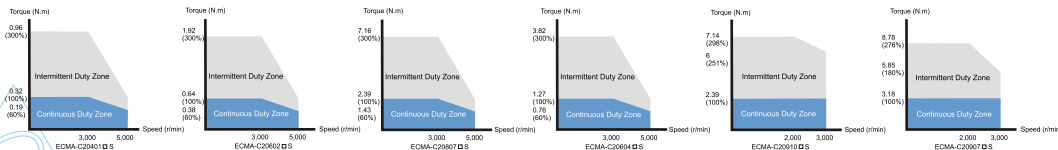
1. Dimensions are in millimeters. Weights are in kilograms (kg) and (pounds) (lbs).
2. Dimensions and weights of the servo motor may be revised without prior notice.
3. The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
4. Except ECMA-CM0604PS LL:116.2mm, for the specifications of the motors with rotary magnetic encoders, please refer to the corresponding standard models.



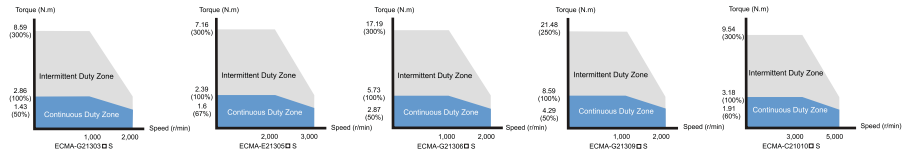
NOTE

1. Dimensions are in millimeters. Weights are in kilograms (kg) and (pounds) (lbs).
2. Dimensions and weights of the servo motor may be revised without prior notice.
3. The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
4. For the specifications of the motors with rotary magnetic encoders, please refer to the corresponding standard models.

Speed-Torque Curves (T-N Curves)

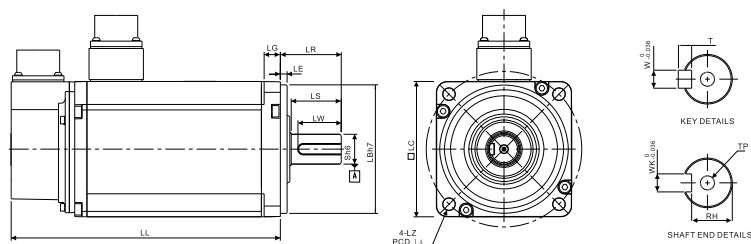


Speed-Torque Curves (T-N Curves)



Dimensions

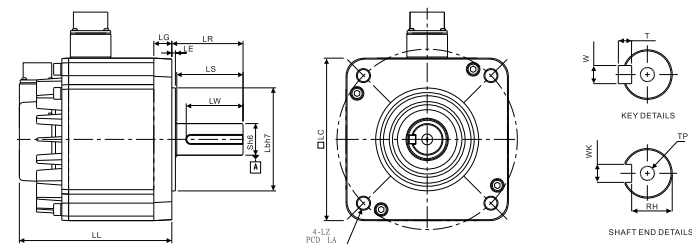
● Motors - Frame Size 100mm ~ 130mm (Units: mm)



Model	E21310□S	E21315□S	C21020□S	E21320□S
LC	130	130	100	130
LZ	9	9	9	9
LA	145	145	115	145
S	22 ^(+0/-0.013)	22 ^(+0/-0.013)	22 ^(+0/-0.013)	22 ^(+0/-0.013)
LB	110 ^(+0/-0.035)	110 ^(+0/-0.035)	95 ^(+0/-0.035)	110 ^(+0/-0.035)
LL(Without Brake)	147.5	167.5	199	187.5
LL(With Brake)	183.5	202	226	216
LS	47	47	37	47
LR	55	55	45	55
LE	6	6	5	6
LG	11.5	11.5	12	11.5
LW	36	36	32	36
RH	18	18	18	18
WK	8	8	8	8
W	8	8	8	8
T	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20

NOTE 1. Dimensions are in millimeters. Weights are in kilograms (kg) and pounds (lbs).
 2. Dimensions and weights of the servo motor may be revised without prior notice.
 3. The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).

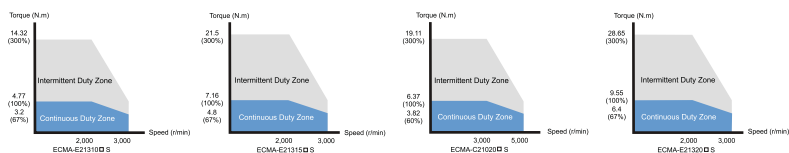
● Motors - Frame Size 180mm and above (Units: mm)



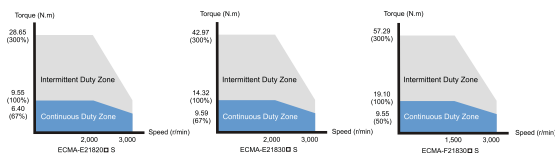
Model	E21820□S	E21830□S	F21830□S
LC	180	180	180
LZ	13.5	13.5	13.5
LA	200	200	200
S	35 ^(+0/-0.016)	35 ^(+0/-0.016)	35 ^(+0/-0.016)
LB	114.3 ^(+0/-0.035)	114.3 ^(+0/-0.035)	114.3 ^(+0/-0.035)
LL(Without Brake)	169	202.1	202.1
LL(With Brake)	203.1	235.3	235.3
LS	73	73	73
LR	79	79	79
LE	4	4	4
LG	20	20	20
LW	63	63	63
RH	30	30	30
WK	10 ^{0/-0.036}	10 ^{0/-0.036}	10 ^{0/-0.036}
W	10 ^{0/-0.036}	10 ^{0/-0.036}	10 ^{0/-0.036}
T	8	8	8
TP	M12 Depth 25	M12 Depth 25	M12 Depth 25

NOTE 1. Dimensions are in millimeters. Weights are in kilograms (kg) and pounds (lbs).
 2. Dimensions and weights of the servo motor may be revised without prior notice.
 3. The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).

● Speed-Torque Curves (T-N Curves)



● Speed-Torque Curves (T-N Curves)



ASDA-B2 Optional Accessories

Optional Units

Power Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.
- Two types are selectable: with brake and without brake.



CN1 I/O Connectors

- Used to connect to external (host) controller



Encoder Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.



Regenerative Resistors

- 400W/400ohm and 1kW/200ohm two kinds of specifications are available.
- For selecting a regenerative resistor, please refer to the table of regenerative resistor specifications on page 12.



RS-485 Connectors

- Used to connect multiple Delta ASDA series products by RS-485 interface through Modbus serial communication.



ASD-Soft Software Communication Cables (for PC)



ASDA-B2 Optional Accessories

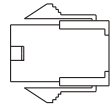
Power Connectors

ASDBCAPW0000



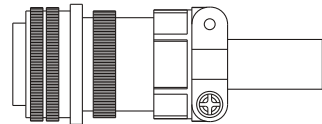
Title	Part No.	Manufacturer
Housing	C4201H00-2*2PA	JOWLE
Terminal	C4201TOP-2	JOWLE

ASDBCAPW0100



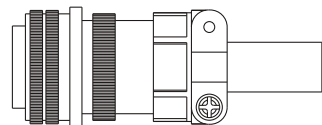
Title	Part No.	Manufacturer
Housing	C4201H00-2*3PA	JOWLE
Terminal	C4201TOP-2	JOWLE

ASD-CAPW1000



MS 3106A-20-18S

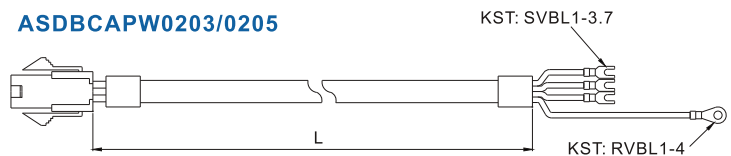
ASD-CAPW2000



MS 3106A-24-11S

Power Cables

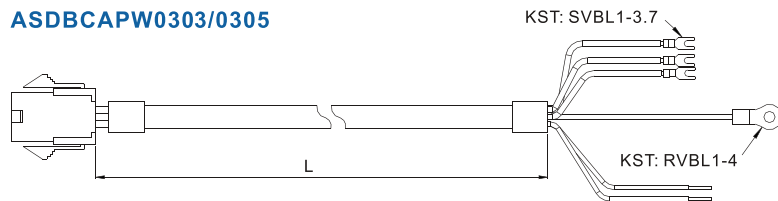
ASDBCAPW0203/0205



Title	Part No.	Manufacturer
Housing	C4201H00-2*2PA	JOWLE
Terminal	C4201TOP-2	JOWLE

Title	Part No.	mm	L	inch
1	ASDBCAPW0203	3000 ± 50	118 ± 2	
2	ASDBCAPW0205	5000 ± 50	197 ± 2	

ASDBCAPW0303/0305

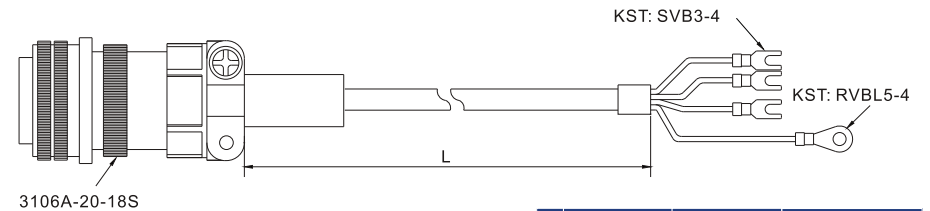


Title	Part No.	Manufacturer
Housing	C4201H00-2*3PA	JOWLE
Terminal	C4201TOP-2	JOWLE

Title	Part No.	mm	L	inch
1	ASDBCAPW0303	3000 ± 50	118 ± 2	
2	ASDBCAPW0305	5000 ± 50	197 ± 2	

Power Cables

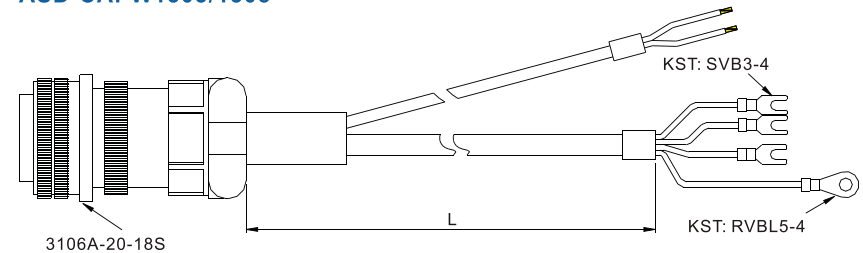
ASD-CAPW1203/1205



3106A-20-18S

Title	Part No.	Straight	mm	L	inch
1	ASD-CAPW1203	3106A-20-18S	3000 ± 50	118 ± 2	
2	ASD-CAPW1205	3106A-20-18S	5000 ± 50	197 ± 2	

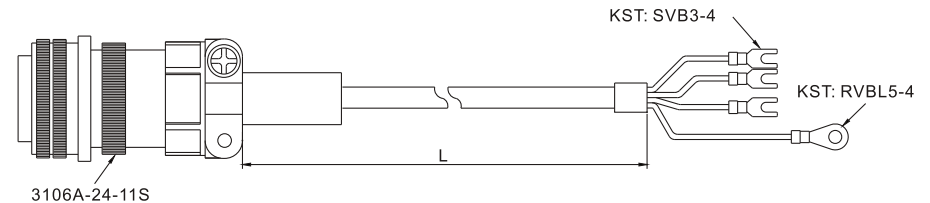
ASD-CAPW1303/1305



3106A-20-18S

Title	Part No.	Straight	mm	L	inch
1	ASD-CAPW1303	3106A-20-18S	3000 ± 50	118 ± 2	
2	ASD-CAPW1305	3106A-20-18S	5000 ± 50	197 ± 2	

ASD-CAPW2203/2205



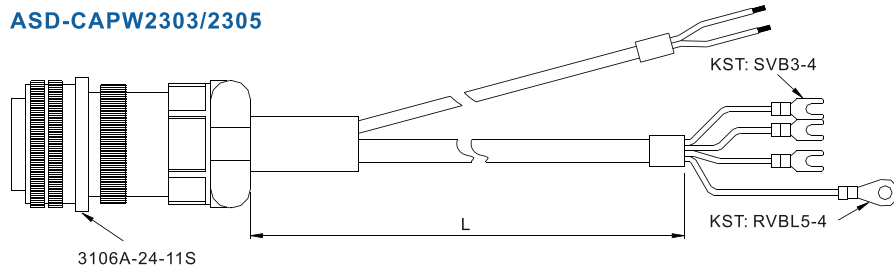
3106A-24-11S

Title	Part No.	Straight	mm	L	inch
1	ASD-CAPW2203	3106A-24-11S	3000 ± 50	118 ± 2	
2	ASD-CAPW2205	3106A-24-11S	5000 ± 50	197 ± 2	

ASDA-B2 Optional Accessories

Power Cables

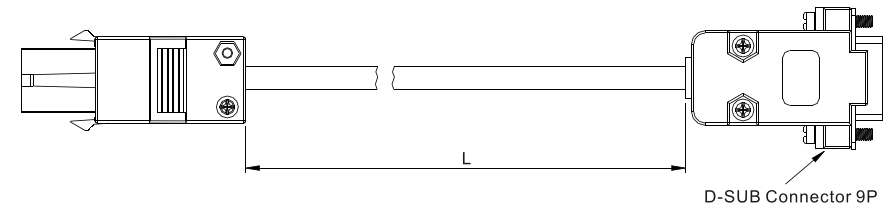
ASD-CAPW2303/2305



Title	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2303	3106A-24-11S	3000 ±.50	118 ±.2
2	ASD-CAPW2305	3106A-24-11S	5000 ±.50	197 ±.2

Encoder Cables

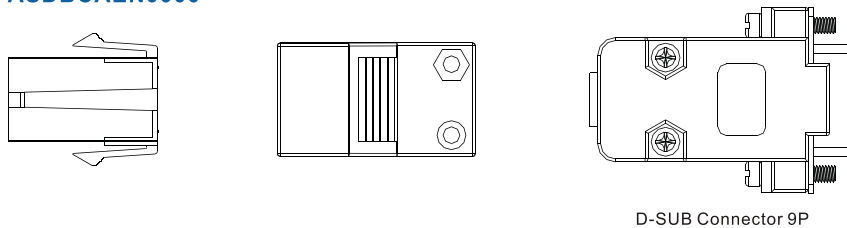
ASDBCAEN0003/0005



Title	Part No.	L		Title	Part No.	Manufacturer
		mm	inch	Housing	AMP(1-172161-9)	AMP
1	ASDBCAEN0003	3000 ±.50	118 ±.2	Terminal	AMP(170359-3)	AMP
2	ASDBCAEN0005	5000 ±.50	197 ±.2	CLAMP	DELTA(34703237XX)	DELTA

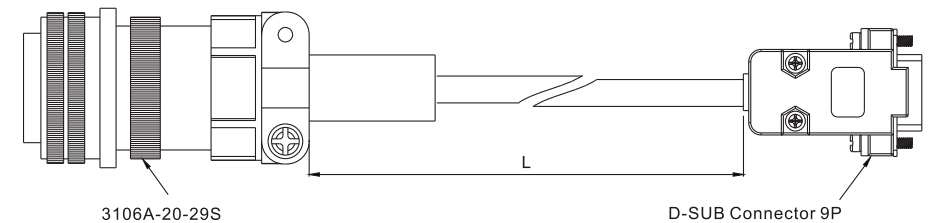
Encoder Connectors

ASDBCAEN0000

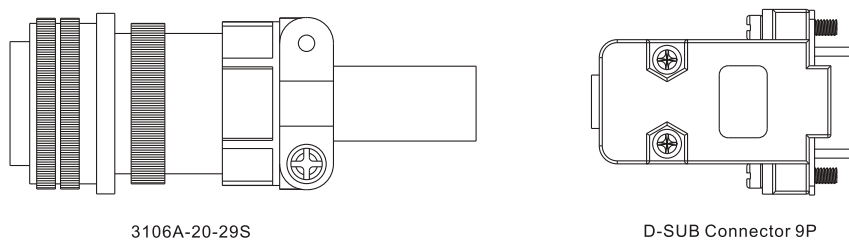


Title	Part No.	Manufacturer
Housing	AMP(1-172161-9)	AMP
Terminal	AMP(170359-3)	AMP
CLAMP	DELTA(34703237XX)	DELTA

ASDBCAEN1003/1005

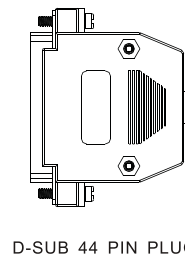


ASDBCAEN1000



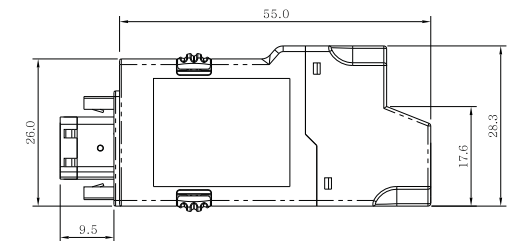
I/O Signal Connector

ASDBCND50044



RS-485 Connector

ASD-CNIEOB06



NOTE The other accessories will be available soon. For the actual appearance of the accessories, please refer to the ordered product.



Accessories Combinations

Servo Drive, Servo Motor and Accessories Combinations

100 W Servo Drive and 100W Low Inertia Servo Motor

Servo Drive	ASD-B2-0121-B			
Low Inertia Servo Motor	ECMA-C20401□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASDBCAPW0203	Motor Power Cable ASDBCAPW0205	Motor Power Cable ASDBCAPW0303	Motor Power Cable ASDBCAPW0305
Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	
Connector	Power Connector ASDBCAPW0000			
	Encoder Connector ASDBCAEN0000			

200W Servo Drive and 200W Low Inertia Servo Motor

Servo Drive	ASD-B2-0221-B			
Low Inertia Servo Motor	ECMA-C20602□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASDBCAPW0203	Motor Power Cable ASDBCAPW0205	Motor Power Cable ASDBCAPW0303	Motor Power Cable ASDBCAPW0305
Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	
Connector	Power Connector ASDBCAPW0000		Power Connector ASDBCAPW0100	
	Encoder Connector ASDBCAEN0000			

400W Servo Drive and 400W Low Inertia Servo Motor

Servo Drive	ASD-B2-0421-B			
Low Inertia Servo Motor	ECMA-C20604□S ECMA-C20804□7 ECMA-CM0604PS			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASDBCAPW0203	Motor Power Cable ASDBCAPW0205	Motor Power Cable ASDBCAPW0303	Motor Power Cable ASDBCAPW0305
Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	
Connector	Power Connector ASDBCAPW0000		Power Connector ASDBCAPW0100	
	Encoder Connector ASDBCAEN0000			

400W Servo Drive and 500W Medium Inertia Servo Motor

Servo Drive	ASD-B2-0421-B			
Medium Inertia Servo Motor	ECMA-E21305□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASDBCAPW1203	Motor Power Cable ASDBCAPW1205	Motor Power Cable ASDBCAPW1303	Motor Power Cable ASDBCAPW1305
Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	
Connector	Power Connector ASDBCAPW1000			
	Encoder Connector ASDBCAEN1000			

400W Servo Drive and 300W High Inertia Servo Motor

Servo Drive	ASD-B2-0421-B			
High Inertia Servo Motor	ECMA-G21303□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	
Connector	Power Connector ASD-CAPW1000			
	Encoder Connector ASDBCAEN1000			

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-B2-0721-B			
Low Inertia Servo Motor	ECMA-C20807□S ECMA-C20907□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASDBCAPW0203	Motor Power Cable ASDBCAPW0205	Motor Power Cable ASDBCAPW0303	Motor Power Cable ASDBCAPW0305
Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	Encoder Cable ASDBCAEN0003	Encoder Cable ASDBCAEN0005	
Connector	Power Connector ASDBCAPW0000		Power Connector ASDBCAPW0100	
	Encoder Connector ASDBCAEN0000			

Accessories Combinations

● Servo Drive, Servo Motor and Accessories Combinations

7750W Servo Drive and 600W High Inertia Servo Motor

Servo Drive	ASD-B2-0721-B			
High Inertia Servo Motor	ECMA-G21306□S ECMA-GM1306PS			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW1000 Encoder Connector ASDBCAEN1000			

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-B2-1021-B			
Low Inertia Servo Motor	ECMA-C21010□S ECMA-C20910□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASDBCAPW1000 Encoder Connector ASDBCAEN1000			

1kW Servo Drive and 1kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-1021-B			
Medium Inertia Servo Motor	ECMA-E21310□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW1000 Encoder Connector ASDBCAEN1000			

1kW Servo Drive and 900W High Inertia Servo Motor

Servo Drive	ASD-B2-1021-B			
High Inertia Servo Motor	ECMA-G21309□S ECMA-GM1309PS			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW1000 Encoder Connector ASDBCAEN1000			

1.5kW Servo Drive and 1.5kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-1521-B			
Medium Inertia Servo Motor	ECMA-E21315□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW1000 Encoder Connector ASDBCAEN1000			

2kW Servo Drive and 2kW Low Inertia Servo Motor

Servo Drive	ASD-B2-2023-B			
Low Inertia Servo Motor	ECMA-C21020□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW1000 Encoder Connector ASDBCAEN1000			



Accessories Combinations

● Servo Drive, Servo Motor and Accessories Combinations

2kW Servo Drive and 2kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-2023-B			
Medium Inertia Servo Motor	ECMA-E21320□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW1203	Motor Power Cable ASD-CAPW1205	Motor Power Cable ASD-CAPW1303	Motor Power Cable ASD-CAPW1305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW1000			
	Encoder Connector ASDBCAEN1000			

Servo Drive	ASD-B2-2023-B			
Medium Inertia Servo Motor	ECMA-E21820□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW2203	Motor Power Cable ASD-CAPW2205	Motor Power Cable ASD-CAPW2303	Motor Power Cable ASD-CAPW2305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASDBCAPW2000			
	Encoder Connector ASDBCAEN1000			

3kW Servo Drive and 3kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-3023-B			
Medium Inertia Servo Motor	ECMA-E21830□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW2203	Motor Power Cable ASD-CAPW2205	Motor Power Cable ASD-CAPW2303	Motor Power Cable ASD-CAPW2305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASD-CAPW2000			
	Encoder Connector ASDBCAEN1000			

Servo Drive	ASD-B2-3023-B			
Medium Inertia Servo Motor	ECMA-F21830□S			
Cable	Without Brake		With Brake	
	3M	5M	3M	5M
	Motor Power Cable ASD-CAPW2203	Motor Power Cable ASD-CAPW2205	Motor Power Cable ASD-CAPW2303	Motor Power Cable ASD-CAPW2305
	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005	Encoder Cable ASDBCAEN1003	Encoder Cable ASDBCAEN1005
Connector	Power Connector ASDBCAPW2000			
	Encoder Connector ASDBCAEN1000			

